Remote Sensing Applications Division (RSAD)

CDR Program Office

Weekly Report for Aug 2, 2012
Ed Kearns, Acting Chief
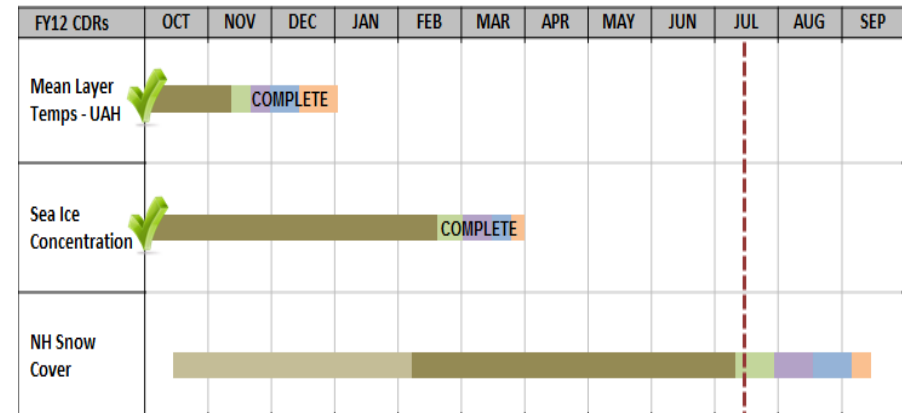
Weekly Report – Aug 2, 2012

(1) **Mean Layer Temperatures – Univ of Alabama Huntsville (UAH)**
- Completed – Nov 17

(2) **Sea Ice Concentration**
- Completed – Mar 28

● (3) **Northern Hemisphere Snow Cover**
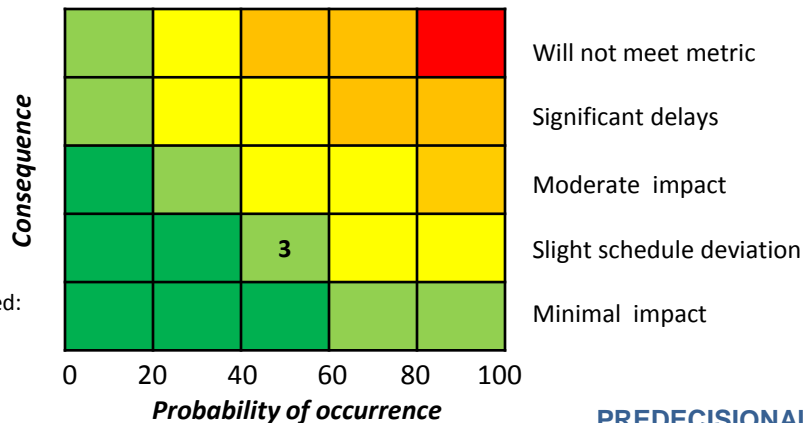- Received second sample netCDF conversion, still some kinks to work out

● No change   ↑ Increasing Risk   ↓ Decreasing Risk   *Candidate CDRs
*

R2O Schedule

FY12 CDRs	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Mean Layer Temps - UAH	✓	COMPLETE										
Sea Ice Concentration	✓					COMPLETE						
NH Snow Cover												

R2O PHASE:	ASSESSMENT	SUBMISSION PREP	TRANSFER	VERIFY	ARCHIVE	ACCESS

Risk Matrix

Will not meet metric
Significant delays
Moderate impact
Slight schedule deviation
Minimal impact

Consequence (y-axis)

Probability of occurrence (x-axis): 0 20 40 60 80 100

Completed: 1,2

Risk - Mitigation

- **Snow Cover PI has a lot to accomplish by the end of the FY**
  - **Gave PI a detailed schedule and he is working to stay on track**
  - **Continue to transition the MLT-RSS CDR as a back-up**

- **No formal QA on product, software, and documentation**
  - **ORR helps alleviate some of the risks**
  - **Will get reviews/input from in house experts as needed**
  - **Need to formally document the current QA steps being done**

PREDECISIONAL DRAFT INFORMATION

8/3/2012

🟢 = On-track   🟡 = Potential management action required   🟠 = Management attention required

FY12 TCDR - NH Snow Cover

CDR Product: TCDR – NH Snow Cover, 1966-2012 (10 GB)
GEOSS Societal Benefit: Climate, Water, Ecosystems, Agriculture, Energy

Project Status

- Received second sample of netCDF dataset
  - File size and array dimensions were fixed
  - Metadata and projection information still need work
- PI sent updated Readme – still needs netCDF conversion piece
- SA draft available on google docs

NCDC SOW developed for:
1) Monthly updates for one year
2) QC tools and training

Next Action/Milestone

- Deliver second sample of netCDF data (7/17) - done
- Send comments back on C-ATBD (7/25)
- Update README and flow diagram with netCDF info (8/1)

(G) ## Project Risks

- Funding (SDS 2008)
  - SS contract submitted to NCAD; pending final decision
- Input data is made with a person in the loop (daily IMS data)
  - Metadata and documentation will detail how the product is created and identify its strengths/weaknesses

ID	Task Name	Status	Start	Stop	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
					FY12 Q1			FY12 Q2			FY12 Q3			FY12 Q4		
1	Initial Assessment	100	10/17/2011	2/9/2012	■	■	■	■								
2	Transfer Prep	65	2/6/2012	8/7/2012					■	■	■	■	■	■	■	
2a	Comment Source Code	50	2/6/2012	5/22/2012					■	■	■	■				
2b	Create Docs (CATBD, Flow Chart, MM, Readme)	75	3/19/2012	6/11/2012						■	■	■	■			
2c	Create NetCDF Dataset	75	5/30/2012	8/7/2012								■	■	■	■	
3	Tranfer Code, Docs, and Data	25	4/18/2012	8/16/2012							■	■	■	■	■	
4	Verify Code, Docs, and Data	25	4/19/2012	8/23/2012							■	■	■	■	■	
5	Archive Code, Docs, and Data	0	5/31/2012	8/31/2012								■	■	■	■	
6	Provide Access to Code, Docs, and Data	0	6/1/2012	9/10/2012								■	■	■	■	■

PI: Robinson (Rutgers Univ, SDS 2008)   RSAD TM: Young

Backup FY12 CDR - Mean Layer Temperature - RSS

CDR Product: TCDR – Atmospheric Temperature at Four Layers, 1978-2011 (140 MB)
GEOSS Societal Benefit: Energy, Climate, Ecosystems

Project Status

- PI sent draft C-ATBD (more like a NASA ATBD, not on template)
  - Dongsoo sent some initial comments back
- PI completed sample netCDF files for all four layers
  - IPT reviewed metadata and provided feedback
- Wentz will represent RSS at the PI conference
- Draft SA available on Google docs for PI and IPT to review
- About 25% of the code has been documented
  - PI will adjust copyright statement to maintain ©, but grant CDRP unrestricted license

NCDC SOW developed for:
1) Monthly updates for one year
2) QC tools and training

Next Action/Milestone

- Draft C-ATBD (4/30) - done
- Updated netCDF file sample (6/1) - done
- Review all four sample files for metadata (7/5) - done

(G) **Project Risks**

- Funding (SDS 2008)
  - Proposal submitted thru CICS; funding in place.

ID	Task Name	Status	Start	Stop	FY12 Q1			FY12 Q2			FY12 Q3			FY12 Q4		
					Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	Initial Assessment	100	10/17/2011	2/3/2012												
2	Transfer Prep	50	2/6/2012	7/24/2012												
2a	Comment Source Code	25	2/6/2012	5/1/2012												
2b	Create Docs (CATBD, Flow Chart, MM, Readme)	25	3/19/2012	5/22/2012												
2c	Create NetCDF Dataset	75	5/3/2012	7/24/2012												
3	Tranfer Code, Docs, and Data	15	4/18/2012	7/26/2012												
4	Verify Code, Docs, and Data	15	4/19/2012	8/9/2012												
5	Archive Code, Docs, and Data	0	5/31/2012	8/17/2012												
6	Provide Access to Code, Docs, and Data	0	6/1/2012	9/3/2012												

    PI: Mears (RSS, SDS 2008)   RSAD TM: Dongsoo Kim

FY13 CDR - Vegetation Bundle

CDR Product: TCDR – Vegetation Bundle, 1981-2012 (2.5 TB)
GEOSS Societal Benefit: Agriculture, Ecosystems, Climate, Biodiversity

Project Status

- **Jessica Matthews met the PI's assistant at the CDR conference**
- Transition slowed while PI works on AVHRR/MODIS jump
- PI sent sample netCDF data
  - Collected feedback on google doc, shared with PI
- PI sent an updated flow diagram
  - much better than first one, still needs some tweaks

- Two CDRs in transition:
  - Deliver Surface Reflectance and NDVI in FY12
  - Postpone LAI and FPAR until more mature (FY13)

Next Action/Milestone

- Initial Assessment (3/22) – done
- Revised Flow Diagram (4/20) - done
- Samples of documented source code (4/27)
- Draft C-ATBD (6/1)

(Y) **Project Risks**

- Lots of work to be completed, FY13 priority.
  - sent PI a detailed task schedule, will push PI to stay on track
  - PI received one year extension, no cost.

ID	Task Name	Status	Start	Stop	FY12 Q1			FY12 Q2			FY12 Q3			FY12 Q4		
					Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	Initial Assessment	100	10/17/2011	4/6/2012												
2	Transfer Prep	25	3/1/2012	8/21/2012												
2a	Comment Source Code	10	3/1/2012	6/1/2012												
2b	Create Docs (CATBD, Flow Chart, MM, Readme)	25	3/15/2012	6/30/2012												
2c	Create NetCDF Dataset	35	4/30/2012	8/21/2012												
3	Tranfer Code, Docs, and Data	10	5/15/2012	8/21/2012												
4	Verify Code, Docs, and Data	10	5/15/2012	8/30/2012												
5	Archive Code, Docs, and Data	0	6/7/2012	9/7/2012												
6	Provide Access to Code, Docs, and Data	0	6/15/2012	9/21/2012												

Other CDR Discussion Items

- **Good PI conference this week**
  - **Many of the PIs were concerned about their funding running out in FY13 and they were not transitioning until FY14-FY16. Assessments may show several are not CDRs and lend a chance to trim the fat.**
  - **We have a lot of large datasets being transitioned in FY13 (two I heard of were 25TB and 45TB)**
    - **-- How do we make sure we have enough space to store and serve them?**

- **We now have version 7 of the RSS SSMI dataset**
  - **Access and Archive want to know how we want it served? In addition to v6, replace v6, on HADS or THREDDS?**

- **PATMOS-X**
  - **Received second draft of C-ATBD, looks pretty good (sent to Brian and Tom for final review)**
  - **Found out that Steve converted all the ascending nodes to netCDF, the non-CDR variables are in a separate file on the NCDC ftp (not enough room on THREDDS)**
  - **Held discussions with Andy, Tom, and Jesse about user needs**
    - **-- decided Andy should converted all the variables to netCDF for the 2009-present delivery and daily updates**
    - **-- means some future work to convert pre-2009 data to match**
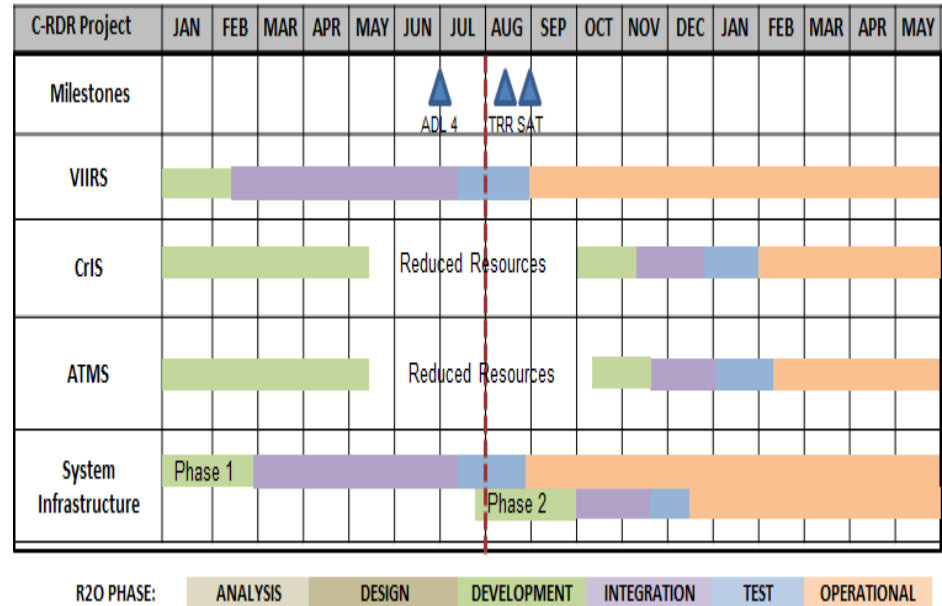   - **-- not enough room on THREDDS (how to request more disk space?)**
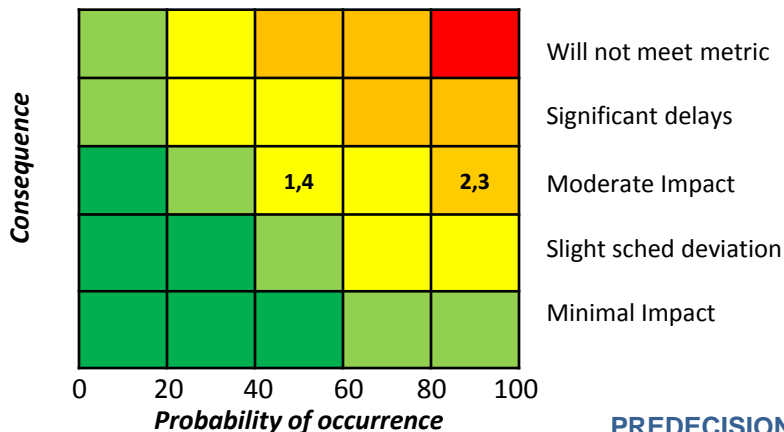
CDR Program Office
NPP/JPSS Climate Raw Data Records (C-RDRs) Project

Weekly Report – August 02, 2012

① VIIRS
- Integrating with the system infrastructure.

② CrIS
- Postponed.

③ ATMS
- Postponed.

④ System Infrastructure
- Integrating with the VIIRS C-RDR.

• Completed build of ADL 4.0. Using ADL 4.0 code to create required metadata for auxiliary files.

- Successfully ran VIIRS data through the C-RDR system infrastructure and C-RDR packer.

| C-RDR Project | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY |

Milestones: ADL 4, TRR SAT

VIIRS, CrIS (Reduced Resources), ATMS (Reduced Resources), System Infrastructure (Phase 1 / Phase 2)

R2O PHASE: ANALYSIS | DESIGN | DEVELOPMENT | INTEGRATION | TEST | OPERATIONAL

Risk Matrix

Consequence (y-axis): Will not meet metric / Significant delays / Moderate Impact / Slight sched deviation / Minimal Impact

Probability of occurrence (x-axis): 0 20 40 60 80 100

Cells: 1,4 (Moderate Impact, ~40); 2,3 (Moderate Impact, ~80)

Risk and Mitigation

VIIRS, CrIS, ATMS –
- Resources are being reduced. Delivery of CrIS and ATMS will be delayed.
- Operational software is under maintenance, updated versions may affect C-RDR ported version.

System Infrastructure –
Reliability of NPP RDRs from CLASS. Need to test ingest of RDRs from CLASS and develop an automated mechanism for re-requesting data.
- Ability of CLASS to handle the frequency and volume of NPP data. CLASS has been successful during system tests.
- Archive in CLASS is currently cost prohibitive. Need to identify alternate archive. Plan to store C-RDRs on HPSS until migration to CLASS.

PREDECISIONAL DRAFT INFORMATION
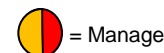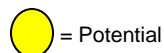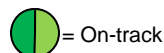
= On-track   = Potential management action required   = Management attention required

Visible Infrared Imaging Radiometer Suite (VIIRS)

C-RDR Product: Raw sensor measurements with usage and provenance metadata in easily accessible netCDF4 format
GEOSS Societal Benefit: Climate, Water, Ecosystems, Agriculture, Biodiversity, Energy

Project Status

- **Completed writing the spacecraft diary portion of the VIIRS C-RDR unpacker (for testing/verification).**
- Generated an image from a VIIRS C-RDR.
- Successfully ran VIIRS data from CLASS through C-RDR packer.
- Completed dynamic C-RDR file-level metadata code.
- Modified the supporting data metadata.
- Implemented and verified netCDF compression.
- Verifying (IDPS) documentation and code changes with DEWG.
- Wrote a test application to dump data from RDR APIDs.
- Completed writing science and spacecraft diary data.
- Completed test of code that writes VIIRS Support Data.

Next Action / Milestone

- Integrating the VIIRS C-RDR software and the system infrastructure.

(Y)

Project Risks

- Complexity of the NPP/JPSS RDRs and operational software
- Operational software is under maintenance, updated versions may affect C-RDR ported version

Project Schedule

ID	Task Name	Status	Start	Stop	FY12 Q1			FY12 Q2			FY12 Q3			FY12 Q4		
					Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	Analysis	Completed	10/23/2009	5/4/2010												
2	Design	Completed	5/6/2010	1/5/2011												
3	Development	95.00%	1/6/2011	1/30/2012												
3a	Develop VIIRS processing component	95.00%	1/6/2011	1/12/2012												
3b	Test VIIRS processing component	95.00%	12/28/2011	1/30/2012												
4	Integration	10.00%	1/31/2012	3/26/2012												
5	Test		3/23/2012	4/12/2012												
5a	Dry Runs		3/23/2012	4/11/2012												
5b	System Acceptance Test		4/12/2012	4/12/2012												
6	Operational		4/13/2012													

Being Reworked

POC: Biard

C-RDR System Infrastructure

C-RDR Product: Infrastructure to automate the production of the C-RDRs.
GEOSS Societal Benefit: Climate, Water, Ecosystems, Agriculture, Biodiversity, Energy

Project Status

- **Completed build of ADL 4.0.**
- **Using ADL 4.0 code to create required metadata for auxiliary files.**
- **Setting up the data flow for the integration environment.**
- Investigating missing metadata for auxiliary data from CLASS.
- Completed verification of auxiliary data obtained from CLASS.
- Modified supporting data software for auxiliary data changes.
- Created initial VIIRS C-RDR from CLASS mission data.
- Development environment is set up on the CICS network.
- Working on managing queues and processing jobs.
- Locating, validating, and statusing files for processing.
- Developing code for ingest detection and processing.
- Completed NPP 14 day Ground Operations Exercise (GOE).
- Completed throughput testing for SIPGenSys.

Next Action / Milestone

- Integrating and testing the system infrastructure.

Y

Project Risks

- Need to develop an automated re-request mechanism for CLASS.

Project Schedule

ID	Task Name	Status	Start	Stop	FY12 Q1			FY12 Q2			FY12 Q3			FY12 Q4		
					Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	Analysis	Completed	9/29/2010	4/22/2011												
2	Design	90.00%	4/25/2011	7/8/2011												
3	Development	80.00%	5/31/2011	2/28/2012												
3a	Develop infrastructure	90.00%	5/31/2011	2/14/2012												
3b	Test infrastructure	70.00%	9/27/2011	2/28/2012				Being Reworked								
4	Integration (Phase 2)	5.00%	1/31/2012	3/26/2012												
5	Test		3/23/2012	4/12/2012												
5a	Dry Runs		3/23/2012	4/11/2012												
5b	System Acceptance Test		4/12/2012	4/12/2012												
6	Operational		4/13/2012													

Weekly Report – August 02, 2012

① OISST – Optimum Interpolated Sea Surface Temperature

- **Attended CDR Annual Conference.**
- **Developing tests (module & component) to verify code execution.**
- Conducted Technology Review July 25.
- Identifying tasks and developing plan for re-writing/refactoring.
- Initial technical assessment completed. Code requires re-writing for structure and coding issues.
- Established a common baseline and environment for code development.
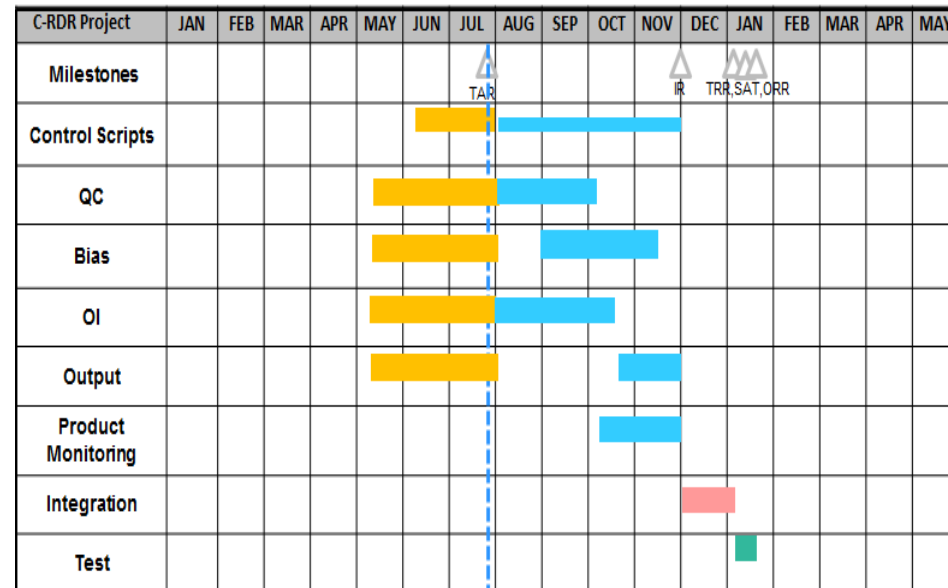
C-RDR Project	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
Milestones							TAR				IR	TRR,SAT,ORR					
Control Scripts																	
QC																	
Bias																	
OI																	
Output																	
Product Monitoring																	
Integration																	
Test																	

R2O PHASE: **ANALYSIS** **DESIGN** **DEVELOPMENT** **INTEGRATION** **TEST** **OPERATIONAL**

Risk Matrix

Consequence

					Will not meet metric
			1		Significant delays
					Moderate Impact
					Slight sched deviation
					Minimal Impact

0   20   40   60   80   100

Probability of occurrence
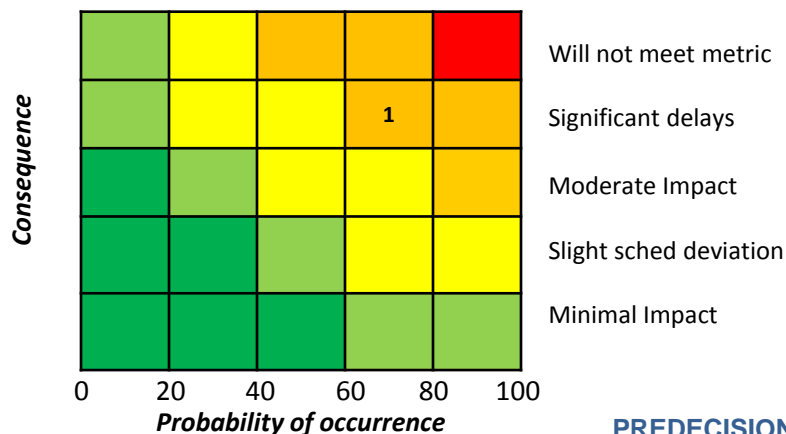
Risk and Mitigation

Resource availability for performing the transition.

Configuration Management (CM) process not defined for operations.

No Quality Assurance team available.

Modifying existing software for internal software changes. Product output must remain unchanged for users.

Common infrastructure for operations is not fully defined.

OISST processing will be on a 64 bit architecture.

PREDECISIONAL DRAFT INFORMATION

8/3/2012

= On-track   = Potential management action required   = Management attention required

10

CDR Program Office
IOC to FOC using PATMOS-X as prototype

Weekly Report – August 3, 2012

Overall schedule risk increased by cumulative effect of staff diversion to IMPACT tool, CICS System Administration, OISST Technical Review, IT Branch calls, and CDRP Annual Conference. **Risk 8.**

(5) **5&6. Familiarization Runs and Diagnostics (was July 7)**
- Running with new test day suggested by PI.

(7) **7&8. Develop & Run Algorithm Test (August 11)**
- Worked around segmentation fault (crash) in L2->L2b component by reducing compiler optimization level.

(9) **9. Derive / Document Architecture (September 15)**
- Gained understanding of data "chunking" within code.

10. Identify Problems and Opportunities (September 15)
- Developing concept for abstraction of data structures within code to reduce cyclomatic complexity in many routines.
- Developing trace from HDF variable names to names within code.
- Investigated high-level differences between 01-11-2011 code snapshot (our baseline) and 04-13-2011 snapshot. Found 7 new files and 42 changed files out of 120 original. More changes expected in forthcoming IOC update delivery. **Risk 3 impact in FY13**.

FY 12 3.1 & 3.2		Fe	Mar	Apr	May	Jun	Jul	Aug	Sep
1	Develop White Paper	✔							
3	Establish Dev Environment			✔					
4	Build and Test Infrastructure					✔			
5,6	Familiarization & Diagnostics								
7,8	Develop & Run Algorithm Test								
9	Derive / Document Architecture								
10	Identify Probs & Opportunities								
11	Prioritize Probs & Opportunities								

Risk Matrix

Consequence (vertical axis, top to bottom):
- Will not meet metric
- Significant delays — 7,8
- Moderate Impact — 5,6
- Slight sched deviation — 9,10
- Minimal Impact

Probability of occurrence (horizontal axis): 0 20 40 60 80 100

Top Risks and Mitigation

R3. Ongoing parallel development by PI
- Mitigation: Use good differencing tool. Incorporate only those changes that have a good justification from the CDR perspective.

R8. Personnel on task at maximum work load
- With recent budget cuts to the CDRP the personnel still engaged on this task are at maximum work level. More budget challenges could result in the loss of the remaining key personnel and jeopardize the completion of this task.

R10. No sustainable commitment for independent Quality Assurance
- QA will be performed by team. Risk is that this work will not be performed as well as it would be by an experienced, independent QA expert.

R13. PI Availability
- Engage PI team at annual conference.